

What is claimed is:

1. An electrical machine comprising:

a magnet,

an electrical conductor arranged to form a loop,

5 a plurality of flux conductors which direct magnetic flux from said magnet through said

loop of electrical conductor, wherein a first set of said flux conductors directs said

magnetic flux through said loop in a first direction and a second set of said flux

conductors directs said magnetic flux through said loop in a second direction, and

a switch for alternately connecting and disconnecting said first and second sets of flux

10 conductors.

2. The electrical machine of claim 1 wherein said flux conductors comprise a plurality of

north flux conductors in magnetically conductive contact with a north pole of said

magnet and a plurality of south flux conductors in magnetically conductive contact

with a south pole of said magnet wherein said north flux conductors and said south

15 flux conductors are spaced from each other to substantially prevent flux leakage

between said north flux conductors and said south flux conductors.

3. The electrical machine of claim 1 wherein said north flux conductors comprise a

plurality of flux conductors with upper terminations but no lower terminations and a

plurality of flux conductors with lower terminations but no upper terminations and

20 wherein said south flux conductors comprise a plurality of flux conductors with

upper terminations but no lower terminations and a plurality of flux conductors with

lower terminations but no upper terminations and wherein said north and south flux

conductors are arranged so that said switch alternately connects an upper termination

of a north flux conductor to a lower termination of a south flux conductor and a lower termination of a north flux conductor to an upper termination of a south flux conductor.

4. The electrical machine of claim 2 wherein said north flux conductors and said south
5 flux conductors are mounted in a non-interleaved arrangement.

5. The electrical machine of claim 2 wherein each of said flux conductors comprises a front panel and a back panel with relatively large surface areas and side portions defined in between said front and back panel wherein said side portions have significantly smaller surface area than said front and back panels and wherein the
10 front and back panels of said north flux conductors are in non-juxtaposed relationship to the front and back panels of said south flux conductors.

6. The electrical machine of claim 5 wherein the side portions of said north flux conductors are spaced from the side portions of said flux conductors by a distance sufficient to substantially prevent flux leakage between said north flux conductors
15 and said south flux conductors.

7. The electrical machine of claim 1 wherein an interface between said flux conductors and said switch is formed by a side portion of said switch and terminations of said flux conductors and wherein said interface is serrated.

8. The electrical machine of claim 7 wherein said interface has a serration angle of
20 approximately 45 degrees.

9. The electrical machine of claim 1 wherein said flux conductors comprise a termination end that is tapered in a radial direction such that the termination of each flux conductor has a thickness that is less than the thickness of the rest of the body of the

flux conductor and wherein said switch is tapered in a radial direction such that a side portion of the switch that is located at the radially innermost extent of said switch has a thickness that is less than the thickness of the rest of the body of the switch.

5 10. The electrical machine of claim 1 wherein said switch is attached to a rotor of the electrical machine.

11. The electrical machine of claim 10 wherein motive force is applied to said rotor to induce electrical current to flow in said electrical conductor.

12. The electrical machine of claim 10 wherein alternating electrical current is
10 applied to said electrical conductor to impart motion to said rotor.

13. The electrical machine of claim 1 wherein said magnet and said electrical conductor are both annular in shape.

14. The electrical machine of claim 13 wherein said magnet and said electrical conductor are concentrically oriented.

15 15. The electrical machine of claim 1 wherein said magnet is a permanent magnet.

16. The electrical machine of claim 1 wherein said magnet is an electromagnet.

17. The electrical machine of claim 1 wherein said magnet is a hybrid comprising a permanent magnet and an electromagnet in juxtaposition such that the magnetic fields of said permanent magnet and said electromagnet are additive.

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